WHAT IS CLAIMED IS:

1. A TCP local retransmission scheme, used in unreliable network, is characterized in the following steps:

A. When the access point of unreliable link receives a new TCP data packet from Internet TCP source, it inserts the packet a LAC-PDU head with time-stamp of first local sequence number. The packet is encapsulated to a LAC-PDU packet as "LAC-PDU head + IP head + TCP head + Data", then is delivered to the current terminal;

B. When the current terminal successfully receives a TCP data packet, it produces an acknowledgement packet (ACK1) which includes an acknowledgement number (AN). It is also inserted a LAC-PDU head with time-stamp of second local sequence number, i.e. the acknowledgement packet is encapsulated to a LAC-PDU acknowledgement packet and is delivered back to the access point of unreliable link;

C. At the access point of unreliable link, a detection of whether there is a data packet loss is made. This is according to the Acknowledgement Number (AN), the Time-stamp of second local sequence number, both received from the acknowledgement package, and the Time-stamp of first local sequence number, which is stored in the access point. If a lost data packet is detected, as step A procedure, updates its time-stamp of first local sequence number in LAC-PDU head, and retransmits. When congestion loss of the data packet is impossible, which corresponds to the acknowledgement number (AN) of acknowledgement packet, the acknowledgment packet (ACK1), with explicit retransmission feedback (ERN) field marked, is delivered to the TCP source.

2. According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. In step A mentioned above, when a LAC-PDU head with time-stamp of first local sequence number is inserted, a copy of the encapsulated LAC-PDU data packet is stored in a buffer at the same time.

3. According to claim 1 or 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The time-stamp of first local sequence number, mentioned above, is a fix length bit field. Along with delivered data packet increases, starting from 0 with 1 as step length its value increases sequentially.

4. According to claim 1 or 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. During the whole delivery process from access point to terminal, the real delivery sequence is uniquely determined by the time-stamp value of first local sequence number in TCP data packet.

5. According to claim 1 or 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The time-stamp of second local sequence number, mentioned above, is also a fix length bit field. It records the maximum value of time-stamp of first local sequence number among all the successfully received TCP data packets in the current terminal.

6. According to claim 1 or 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. As mention above at access point of unreliable link, a lost data packet is detected according to the acknowledgement number (AN), the time-stamp of second local sequence number, both

comes from received acknowledgement packet, and the time-stamp of first local sequence number, which is stored at the access point. Further more, detection is made for whether the data packet, which corresponds to the acknowledgement number (AN) of acknowledgement packet, is still in the access point of unreliable link, if it is, a comparison between two time-stamps is made. The comparison is between the time-stamp of first local sequence number in the data packet and the time-stamp of second local sequence number in the acknowledgement packet. If the time-stamp of first local sequence number is less than the time-stamp of second local sequence number, the lost data packet is detected; then the time-stamp of first local sequence number at the LAC-PDU head is updated and the data packet is retransmitted. In addition, in the access point of unreliable link, the data packets, which time-stamp of first local sequence number is less than the acknowledgement number (AN), are all deleted.

7. According to claim 6, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The update of the time-stamp of first local sequence number at the LAC-PDU head of the data packet, mentioned above, substitutes the time-stamp of first local sequence number with the current delivery sequence, then retransmits.

8. According to claim 6, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. As mentioned above, in the access point of unreliable link, the data packets, which TCP sequence number is less than the acknowledgement number, are all deleted at the following situations. They are:

a data packet, which corresponds to acknowledgement number (AN) of acknowledgement packet, is not in the access point of unreliable link;

the time-stamp of first local sequence number is equal or greater than the time-stamp of second local sequence number;

after lost data packet is detected, updated and retransmitted.

9. According to claim 6, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The explicit retransmission (ERN) feedback, mentioned above, is an one bit field. When the data packet, corresponding to the acknowledgement number (AN), in the access point of unreliable link is detected, the explicit retransmission (ERN) feedback bit of acknowledgement packet (ACK1), which is to be sent to TCP source, is set. When TCP source receives an acknowledgement packet (ACK1) with explicit retransmission (ERN) feedback bit set, at the same time fast retransmission or timeout retransmission of the TCP data packet happen, which corresponds to the acknowledgement packet (ACK1), only the data packet is retransmitted without any shrink operation of the sending window.

10. According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The mentioned above time-stamp length, for first local sequence number or second local sequence number, is the maximum packet number can be buffered at the access point of unreliable link.

11. According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The mentioned above time-stamp length, for first local sequence or second local sequence number, is an eight bits field, including one carry bit for overflow.

12. According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. In mentioned step A, in LAC-

PDU data packet the time-stamp of first local sequence number may be substituted by lower layer transfer sequence number, and a corresponding relationship between sequence number of TCP data packet and its lower layer transfer sequence number is created. With this substitution, in mentioned step B, the time-stamp of second local sequence number is the successfully received maximum transfer sequence number of lower layer in the terminal.

13. A TCP local retransmission scheme, used in unreliable network, the characteristic is as follows: Method of transmitting a data packet for Mobile communication system which receives the data packet including sequence number from Internet Networks and transmits the data packet to mobile terminal ;said transmitting method comprising the steps of :

receiving a new data packet from Internet Network ;

giving a time-stamp of first local sequence number to the each received data packet ;

forming the packet data to a format using in the mobile communication system with the given time-stamp of first local sequence number ;

buffering the packet data with the time-stamp ;

transmitting the formed packet data to the mobile terminal sending back a acknowledgement data from the mobile terminal , when the mobile terminal successfully receives the transmitted packet data , which includes an acknowledgement number and the time-stamp of second local sequence number corresponding to the received time-stamp of first local sequence number ;

detecting the data packet which should be retransmitted to the mobile terminal by comparing the buffered sequence number and the time-stamp of first sequence number with the sent back acknowledgement data ; and

retransmitting the detected data packet .

14. According to claim 13, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows: Method of transmitting a data packet, wherein said mobile communication system includes a server , said server gives the time-stamp of first local sequence number to the each received data packet , forms the packet data to the format using in the mobile communication system with the time-stamp of first local sequence number and buffers the packet data with the time stamp .

15. A TCP local retransmission scheme, used in unreliable network, the characteristic is as follows : Method of receiving data packet of Mobile terminal in Mobile communication system which receives data packet including sequence number from Internet Networks and transmits the data packet to the mobile terminal ; said receiving method comprising the steps of :

receiving a new data packet which is formed to a format using in the mobile communication system , the formed the data packet includes a time-stamp of first local sequence number ;

giving a time-stamp of second local sequence number corresponding to the received time-stamp of first local sequence number ;

sending back a acknowledgement data which includes an acknowledgement number and the given time-stamp of second local sequence number corresponding to the received time-stamp of first local sequence number.